AMERICAN VETERINARY REVIEW,

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EDITORIAL.

AMERICAN VETERINARY REVIEW PRIZE.—Conditions—The committee. THE RECENT OUTBREAK OF GLANDERS IN MASSACHUSETTS.—Our notice in November, 1887—the report of the Cattle Commissioners—light esteem in which professional opinion is held—majority, though wrong, carries the day—Dr. Winchester is right, any how—experts appointed—their report ignored—Why?—the opinions of the veterinarians of the road—entire ignorance of symptoms recognized by all qualified practitioners as pathognomonic—inoculation confirms the diagnosis of the minority and of the experts—the conclusion is not surprising to us—the result. "YES, SMOTHER THEM."—The sound resolutions passed by the National Farmers' Congress—the bill presented in the Senate and House of Representatives—a horse tamer, said to be "an uneducated man, a cheeky pretender, and a non-graduate," sought to be appointed to establish veterinary schools in the country—the veterinary profession and education as they are and ought to be. CONTAGIOUS PLEURO-PNEUMONIA IN PENNSYLVANIA.—Did not know it was there, but veterinarians did—resolutions of the Keystone Association—the investigating officials. ARMY VETERINARY LEGISLATION.—A new bill to be introduced in Congress—a good bill, though perhaps lengthy—its indorsement by numerous army officers. UNITED STATES VETERINARY MEDICAL ASSOCIATION.—Next semi-annual meeting in Baltimore.

AMERICAN VETERINARY REVIEW PRIZE.—An annual prize of *one hundred dollars* is offered by the editorial staff for the best ORIGINAL paper on any veterinary subject. All competitors must send their manuscript before April 1st, 1888, to 141 West Fifty-fourth street, New York City, each paper being distinguished by a special motto and accompanied by a sealed envelope, indorsed externally with the distinguishing motto for identification, and inclosing the name and address of the author.

The prize will be awarded upon the verdict of a committee of five veterinarians, selected from the ranks of the profession at large throughout the United States. The committee consists of Prof. R. Huidekoper, chairman, Dr. J. C. Myers, Sr., A. A. Holcombe, L. Howard, and D. J. Dixon.

THE RECENT OUTBREAK OF GLANDERS IN MASSACHUSETTS.—In the month of November, 1887, we mentioned the fact of a serious outbreak of glanders in Massachusetts, in the suburbs of Boston. The history of this momentous event is ably reported in the annual report of the Cattle Commissioners for 1887, just received; and the results of the incident demonstrate once more the comparatively light esteem in which a professional opinion is held when it is in the minority against that of officials who, though unqualifiedly gentlemen, perfectly honest and of a high intelligence, yet are not possessed of special and technical training.

This is well illustrated in the case before us. Two of the Cattle Commissioners, neither veterinarians, we believe, or, if so, more amateur than regular practitioners, constituted the majority of the Cattle Commission against Dr. F. Winchester, and the result was that a number of horses which had been condemned as diseased and as suspicious by two veterinarians called as experts were released from quarantine and allowed to resume their work. The propriety of ignoring the reports of the experts, after they had been appointed by the Cattle Commission, is certainly questionable, as, while there is a difference in the number of animals condemned, their reports agree on twenty animals examined, which are then condemned, and, in the presence of the facts, it seems, ought to have been destroyed. Well, the majority ruled; these were permitted to go with the others. A question may naturally present itself as to what influence may have been brought to bear on the minds of those two gentlemen who thus formed the majority. We believe that the opinions expressed by some of the veterinarians who inspected the horses for the railroad company must have had weight in the decision of the majority. To say that "they never heard of or saw pin-hole ulceration in connection with glanders;" to deny the existence of the disease because "three lesions—gland, ulcer, and discharge"—were

necessary to satisfy one that a horse is diseased with glanders; or "that the chancre cannot exist without swollen glands," are incomprehensible and unexplainable opinions, to put it mildly. Statements of that nature, when made by those who by their official position are supposed to be *au courant* of modern and recent literature, and of the present advanced pathology, must undoubtedly have had influence of great weight before persons more or less interested in the settlement of a question of the kind. But if those assertions are true, and if the opinions of the experts have resulted in unnecessary expense to the State of Massachusetts, what will be said of the results which were obtained by Dr. Winchester, who, we are informed, called inoculation to his aid to prove the correctness of his diagnosis, with the result of triumphantly confirming it?

We consider the whole transaction as one to be much regretted, as one, we seriously fear, the majority of the Commission may one day be sadly sorry for, and which, we are afraid, will serve as a severe lesson to those who are not well acquainted with the many forms that lesions of glanders are liable to assume. But with all that, the result is nothing more nor less than the one we have too often been accustomed to observe in similar circumstances on this side of the Atlantic. The worst result, however, is the spreading of the disease beyond known limits, and without present power to control, not only in that State, but all over the country. Can we, then, be surprised to hear that glanders exists to a large extent in every State and Territory of the Union, and kills so many animals? Can we be surprised at reading now and then of the death of a human being? Our sanitary veterinary service needs improvement, no doubt.

"Yes, Smother Them."—"*Whereas*, The animal industry of the United States has developed into such magnitude, and is so intimately connected with the present and future prosperity of our country, the intimate and inseparable connection of the plant kingdom thereto demands from our General Government the care of a fostering hand; therefore, be it

"Resolved, *That this Congress, through our Representatives and Senators, ask an appropriation sufficient to found and con-*

duct a scientific school for the teaching of veterinary and sanitary science."

This is a resolution which was passed at the National Farmers' Congress, held, we believe, in the month of November, 1887, in Chicago.

In *Turf, Field and Farm* of Feb. 3d, under the heading of "Smother Them," appears a notice to which no one can be indifferent. It is that the Honorables Mr. Hampton, of South Carolina, and Mr. Wise, of Virginia, one in the Senate, the other in the House of Representatives, have both introduced in their respective houses bills to the effect that "schools for instruction in veterinary science" be established at points most suitable.

Is this last move the result of the wise resolution of the National Farmers' Congress? At first the careless reader interested in veterinary progress might think so. But see how great the disappointment will be! Who, according to the gentlemen from South Carolina and from Virginia, is to be entrusted with this enormous task and tremendous responsibility of organizing schools of veterinary science in the United States? Is it one whose special ability, peculiar education, national reputation as a veterinarian or as a teacher, has pointed him out as THE one who might attempt the undertaking (if there is such a one daring and conceited enough to do it alone)? No, it is one who—whether justly or not, we cannot say—has made himself a name as "a horse tamer," one who is said to be "an uneducated man, a cheeky pretender, and a non-graduate." Is not our excellent contemporary right when it says, "Smother them"? Yes, do so, and do so as well to all who ignore the true purposes involved in the establishment of veterinary schools, if the work which such institutions will do is ever to be of any use and advantage to our people and to the profession.

Veterinary education has as yet received no assistance from the General Government; veterinary graduates have, it is true, occasionally received at its hands, in some departments, recognition by receiving appointments to fulfil some special duties, but with them non-graduates have also been associated and placed upon the same level. The army has a regulation by which none

but regular graduates can occupy positions as veterinarians in the ranks, but this regulation is comparatively a dead letter, as irregulars are yet attached in such capacities to some of our regiments of cavalry; and yet from day to day the importance of veterinary science is impressing itself more and more upon the public attention, and the question as to the attitude of the General Government to the subject is growing more and more urgent. Is not this an auspicious opportunity for the authorities at Washington to take the work in hand by recognizing the resolution of the National Farmers' Congress? It is not a new question nor a new subject. For years the establishment of a National Veterinary School has been advocated, not by farmers, agriculturists, or Representatives, but by the very ones who were acquainted with the necessity and the importance of the work, who have no "axe to grind" and nothing to gain but to benefit the country and elevate the profession—and those were veterinarians. It is a subject that cannot remain much longer ignored. A National Veterinary School will yet impose itself upon the General Government, with the same claims as a necessity as account for the existence of West Point or the Naval School. If these latter will furnish means to defend the country in time of war, the former will properly prepare men to protect her agricultural interests, her live stock—that is her national wealth—in the time of peace.

Contagious Pleuro-Pneumonia in Pennsylvania.—"To my knowledge, there is no pleuro-pneumonia in the State," was about the answer given by Mr. Th. J. Edge, the Secretary of the Board of Agriculture, who, since 1879, has had the work of eradicating that disease from the Keystone State in charge, and yet veterinarians knew better—and right they were. To-day the question is no more in doubt. The disease prevails there. It has been found in carcasses of animals killed for consumption, and also in living animals, which were under the treatment of a quack. To what extent the disease may have spread since the inauguration of the work carried on by Mr. Edge is not yet known, but the investigation which is to be made by the proper authorities (veterinarians) will soon determine it, and meanwhile the veterinarians of Pennsylvania have passed the following resol-

ution at a meeting they held at the request of the Governor, viz.:

Resolved, That we heartily recommend the Governor of this Commonwealth to accept the co-operation of the national authorities in the investigation of the disease known as contagious pleuro-pneumonia. And that we further recommend that the territory for a distance of ten miles in all directions from the City Hall, Philadelphia, be placed under a thorough investigation, said limits to be under quarantine.

RUSH S. HUIDEKOPER, President.
W. HORACE HOSKINS, Secretary.

Drs. Trumbower and Rose, of the Bureau of Animal Industry, have reported to Philadelphia, and are preparing to work in the proper direction.

ARMY VETERINARY LEGISLATION.—At the request of Dr. D. Lemay, of the U. S. Army, we publish a copy of another bill which is to be presented to Congress for the reorganization of the veterinary service in the U. S. army. Several bills, we believe, have already been framed and found their way to the Senate and House of Representatives, and all must hope that something will be obtained soon, securing a better organization of that important branch of the military service. We have repeatedly called attention to the importance of the subject, and published all that has come to us from all interested parties. One difficulty in drafting a bill which will command attention too often arises from the tendency of those who write them to make them too long, and in making provisions in the bill for matters of detail which are already provided for by the rules and regulations of the service, or already existing laws. This last bill, though quite lengthy, seems to have avoided that error, though probably not as much as the bill (which we believe is already in Washington) recommended by the Committee of the U. S. Veterinary Medical Association. The opinions which accompany the draft of the bill show the importance of the subject and from the names of the signers, it is pretty evident that our friends of the army are justified in the hope of their claim being realized at an early date.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.—We are informed per notice of Dr. Michener, Secretary, that the semi-annual meeting of this Association will take place this year in Baltimore, on

the third Tuesday in March. It is to be hoped that a large gathering of the members will take place, as we understand our friends in that city *hospitaliere* are making great preparations for the reception of those who will attend. Every effort will be made to render the meeting pleasant and interesting.

ORIGINAL ARTICLES.

ELECTRICITY IN MEDICINE.

A paper read before the Ohto State Veterinary Medical Association by Dr. W. J. TORRANCE.

Mr. President and Gentlemen:

It affords me much pleasure to endeavor to fulfill a privilege granted me by the members of this Association—namely—the privilege of addressing you.

When I announce the subject of my paper, "Electricity in Medicine," you will surely pardon its brevity and my utter incompetence to deal with it.

Electricity has as yet scarcely received its merited consideration and application to the healing art, by our medical confreres, the human physicians, while veterinarians have shamefully ignored it as an essential factor in their education. For this reason I feel that I am looking in the dark in my present effort to introduce a subject so undeniably in its infancy and so little practically known to myself and to our profession. And while these assertions are made, we cannot but admit that the development of the science as applied to medicine and surgery has by no means remained at a standstill during the past ten years: for new means have slowly been established for its application in various diseases and deformities, until, to-day, it—the mysterious electrical fluid—is viewed by some of the most competent judges as a potent therapeutic agent.

Notwithstanding its undoubted efficacy, it is surprising that there still remains such a large class of physicians who rarely employ electricity in practice, and are satisfied to sit quietly by in ignorance and await its development in the hands of more skillful and more enterprising practitioners.

There is no plausable reason why electricity should not have advanced as far in medicine as it has done in the mechanical arts, and still less reason why it should not have progressed as far in veterinary medicine as it has done in the human art.

What student of medicine would profess to have a knowledge of materia medica who had neglected to study such important drugs as opium or alcohol?—and yet electricity cannot be said to occupy a position in therapeutics second to that accorded either of the drugs above mentioned. Some of its achievements in medicine and surgery undoubtedly stand unrivalled. And we must remember that the reputation which it has earned has been gained in spite of the most fearful obstacles. It has seldom been applied except as a *dernier* resort or in chronic cases, and has then been instituted with a shameful lack of confidence and applied with an equal lack of science.

Bartholow justly says of it "there is no effect more certain than the power of galvanism to relieve pain."

Austin Flint recommends it in the diagnosis of the paralysis and in the treatment of diseases of the internal organs as well as in chorea, myalgia, neuralgia, neuritis, amaurosis, the neuroses, muscular-atrophy, etc.

But we need not depend entirely upon our medical confreres for an honest exposition of its efficacy. Veterinary surgeons in foreign lands have long recognized its utility, and when in our country such notable authorities as the illustrious Law and others, accord electricity a therapeutic recognition—must we not feel depressed to think that we are still satisfied to consider our offices equipped without at least a galvanic and a faradic battery in them.

Among practitioners we have some enthusiastically in favor of this agent, some lukewarm advocates and an enormous number of absolute disbelievers, who still cling to their ancient forms of medication and stubbornly argue the inefficiency of all new means. The answer to these is the time-told response to skepticists, "that there are still some learned men who maintain that the earth is flat and that the sun revolves 'round it once in twenty four hours: but for every one of such there are thousands who know better."

But while the class of disbelievers is growing smaller the "advocates,' are gradually augmenting in numbers and are striving to abort electricity from the field of charlatanry and to elevate it to its legitimate rank in medicine.

Again the fact that electricity and magnetism are empirical strongholds is no excuse for their non-recognition by scientists.

I shall not discuss magnetism save to say that it bears a strange resemblance to electricity, that it may be utilized in the same way, that its curative repute is not to be ignored and that "temporary magnets" are an essential factor in the construction of complex electrical apparatuses such as the Dubois Reymond Induction Coil, &c. &c. A magnet has the power of electrifying while electricity has the power of magnetising. A magnetic battery consists simply of a number of magnets bound together with their like poles in the same direction and may be so constructed as to form a constant force.

Magnetism has been employed with considerable success in hysteria, neuralgia, anasthesia and chorea, and it is possible that it may yet be skillfully utilized in the extraction of foreign metals from the eye and other delicate organs.

A few short notes on "electro-physics" and "electro-physiology" will be pardoned, even though randomly delivered, when it is considered that I shall not burden you with the details of their theoretical application to disease.

Electricity may be defined to be a powerful physical agent, morphologically unknown tho' supposed to be a fluid, the existence of which is made known chiefly by attraction and repulsion and by its luminous and heating effects. Its action is excited by heat, chemical action, friction and magnetism. The electricity is termed 'static' in contradistinction to 'dynamic' because it is not in a state of high tension.

It is supposed that there are two kinds of electricity pervading all bodies, positive or vitreous, and negative or resinous. In the unelectrified condition these fluids just neutralize each other; but the equilibrium may be disturbed by physical agencies.

Static electricity produces much the same physiological phenomena as the ordinary faradic current and has been utilized in

the form of electric belts and by the local withdrawal of sparks in organic diseases. (Electric belts ought not to be ignored by veterinarians). It is painless even when producing the strongest muscular contractions and receives the highest therapeutical recommendation from such authorities as Dr. Golding Bird, who records the curing with it of thirty-five out of thirty-six cases of chorea, which had already baffled all medical treatment and been pronounced incurable. Static electricity is generally utilized in the same class of cases as faradism, and with equal success. Its painless character should render it advantageous in equine practice: but statical machines possess one disadvantage, that of being inert, or irregular in action during the heat of summer.

The law that unlike electricities attract and like repel requires no explanation or allusion save to say that it accounts for the institution of a current when the poles of an ordinary magnet are applied to the animal body.

Metallic and other materials vary greatly in the conductivity of electricity, but bear practically the same relations to one another as in the transmission of heat. Silver, water, acids, charcoal and most of the metals are good conductors. Platinum is a remarkably poor one, as is also dry air. The fluid tissues, the water salts and metals of the animal body are good conductors and ought to convey the peculiar fluid rapidly: but other circumstances may modify this result. Having convinced myself that the subcutaneous connective tissue is the most efficient conductor, I generally utilize subcutaneous needle electrodes with long conjunctive wires in equine practice. Electricity, however, will always choose the parts of least resistance. The hair of the horse or dog is a poor conductor and an obstacle to electro-therapeutical practice. The horn of the hoof, strange to say, offers but little resistence to the current.

Induction is the influence which an electrified body exerts over another body placed near but not in contact with it, in decomposing its neutral electricity, attracting the unlike to the proximal end and repelling the like to the distal extremity. An "induced current," therefore is always of an opposite character to the "primary," and herein lies the difference between faradism and galvanism.

In practice it must be remembered that the electricity does not penetrate deeply into the interior of bodies, but seeks the surface, therefore the greater the surface the greater the amount contained; and further, that it has a marked tendency to accumulate and discharge in points. Possibly the shoes of the horse are the discharging points and the earth the receiver. In such a case "insulative" foot plates or floors may be required in equine electro-therapeutical practice, while the conducting powers also of the different forms of litter require some consideration by the veterinarian.

As a suggestion to those building or equipping veterinary infirmaries in large cities, it might be mentioned that there is no reason why the electric current of ordinary lighting wires should not be introduced into these hospitals.

This current is a "constant current" easily regulated in quantity and quality by mechanical fixtures, so as to be utilized for almost all therapeutical purposes, including the galvano-cautery. With such a constant electrical supply as this an equipment of suitable electrodes for permanent use is but a small item of expense, while the dangers of the system are easily minimized in these days of advanced science.

Again, "the strange fluid," like all other fluids, seeks its own level, and it is therefore customary to speak of "positive" and "negative," potentials. Two agents charged of different potentials act positively and negatively to each other.

I shall not attempt to describe any of the countless varieties of batteries; they are too numerous and too complex. The cells of certain fishes even are looked upon as battery cells, and justly so, for they possess the power of magnetizing soft iron and of deflecting the galvanometer.

Galvanism and faradism require some allusion.

The galvanic, voltaic, or chemical current is generated by contact of dissimilar bodies in the presence of heat or chemical action. Thus, when two metals are placed in a liquid which acts more strongly upon the one than the other, a difference of their "potentials" results, and if now they be connected by metallic wires the electricity flows from the higher to the lower potential:

and the equilibrium is restored, but chemical action continuing the constant current is the result. Such is the galvanic circuit, and in the ordinary zinc and carbon batteries we must not forget that the current flows from the metal most acted upon—the zinc—thro' the fluid to the carbon and from thence through the connecting wires to the zinc. The carbon, therefore, is electro-negative to the zinc, and its pole or discharger is the anode or positive pole, and the current flows from the positive pole of the carbon to the negative pole of the zinc. The property of creating differences of potential is called electro-motive force, and is truly an imaginary force moving an imaginary fluid. The resistance offered by the conducting wires is universely proportional to their sectional area, and directly to their length and varies with the specific conducting power of the metal used. Metallic resistance to a constant current is the principle engaged in the production of luminous jets, the galvano-cautery, &c.

Electrical luminosity has been utilized in therapeutics, surgically upon the larynx and similiar organs in the hands of specialists.

The electrical density of a current refers to the relation existing between the area of the substance traversed and the quantity of the fluid disengaged.

The human epidermis, as has been mentioned of the hair of the horse, offers a strong resistance to the current; but this may be partially overcome in practice by increasing the size of the electrodes, the pressure and length of application, and by the use of a saline solution upon the surface. For medical purposes it is advantageous to connect "cells" in "series," rather than by superficial arrangement.

Electrolysis is the electrical separation of the elements of a compound into its individual electrolytes, none of which can be further decomposed. Solution favors electrolysis; yet it is doubtful whether the tissues of the animal body, semi-fluid as they are, exhibit in any degree the electrolytic phenomena of the gathering at the anode or positive pole of O. chl., the acids and electro-negative elements, or at the catteocle of electro-positive elements, such as H, the alkalies and the metals. The elec-

tro-surgical treatment of aneurisms has as its basic factor of success the power of the anodic needles to coagulate the blood.

It will be found in practice that galvanism is the most penetrating, painless and sedative current (therefore its practicability in equine practice); and further, we may yet find a distinct "specific" variation among animal species in their susceptibility or resistance to the current or currents. That different species of domestic animals possess a varied susceptibility, always more delicate than that of man, to atmospheric influences, I have had occasion to substantially demonstrate by proving the exactness (barometrically) with which sheep can foretell a storm, and also other differences of susceptibility of different breeds of that species. It is within the range of human probability that these atmospheric changes are electrical, and that animals bear a very varied acuteness of sensibility to electrical influences. I maintain, from that little experience which I have had in this line, that equines are more sensitive to and less tolerant of either galvanical or faradic currents than man.

In this connection I desire to substantiate these observations by the statement of Dr. Whitehead, of Ohio, which his experience has repeatedly confirmed, that animals suffering from trismus, tetanus, and similar affections, exhibit marked exacerbations of the symptoms, spasms, convulsions, etc., before a "storm," whether it be or be not preceded, accompanied or followed by visible or audible phenomena.*

The physiology of the neuro-muscular apparatus having been so extensively elaborated by electrical experimentation, a few scattered remarks, recalled by memory, upon this and kindred subjects, will perhaps be excusable, notwithstanding the fact that vivisection has been the method of obtaining our knowledge.

It may be stated generally that electric currents act as stimulents to the part at which applied and to neighboring parts. They act as nervous excitants, both reflexly and directly, and probably have numerous undefined vaso-motor effects upon the nutrition of the part, through the nervous, circulatory and sympathetic systems, which may account for the metabolic changes

* Inserted since reading this paper.

produced, and for the catalytic action accredited the peculiar fluid.

The physiology of the brain and spinal cord were little understood until the stimulation of nerves and nerve centres was instituted, electricity being chosen as the stimulating agent, on account of its cheapness, easy regulation, rapidity of action, accuracy, etc. By vivisection of frogs, turtles, rabbits and smaller animals, exposing crainal, spinal and nervous areas, such as the pneumogastric, sympathetic and other nerves, and by exposing for experimentation even the heart itself, enormous numbers of physiological facts have been deduced from the phenomena observed. These facts, like all others in physiology, have a bearing on pathology, but have not yet been practically utilized to any extent in medicine. We have learned, however, that the physiology of the heart-beat, the innervation of the iris, the localization of cerebral and spinal tracts, etc., etc., are exceedingly complex studies.

When a galvanic current traverses a motor nerve, the muscle supplied by that nerve contracts, but the contractions will only recur upon the makes and breaks of the circuit (or upon changes of the strength of the current), which, if they be sufficiently rapid in succession, will induce an "artificial tetanus," corresponding to the tetanic action of volitional muscular contraction. That an electric current traverses an acting muscle or nerve in health has long been demonstrated by the galvanometer. These, no doubt, are both caused by and causative of chemical action, and certain drugs, such as curare-varatria, etc., are known to modify or even obstruct these currents.

Sudden reversals of polarity of the electrodes induce powerful reactions; but the direction of the current has but little influence upon the contractions, for all currents diffuse in subservance to physical law. Fatigue, impoverished blood supply and lowered temperature certainly modify the contractions in a definite manner; but the altered reactions of morbid processes are indefinite. The part of a muscle excited by a current is electro-negative to all other parts, while, in a transverse section of muscle, the currents run from the equator or positive pole to the cut extremities.

For unstriated muscle the galvanic or constant current is the most effectual stimulus, and the muscle responds in its normal vermicular wave. It has been observed that stimulation of the intestinal tract with electrodes at either end produces strong contractions at the extremities, while the intervening area of intestines remains relaxed.

Cardiac muscle responds only to galvanism, and sections of it are governed by the same laws as striated muscle. By stimulation of the veins or sympathetic nerves, we find that a weak current to the former weakens the heart-beat, while a strong one quickens it, arrests it in diastole, and also arrests the respiratory movements during inspiration. Stimulation of the sympathetic, generally speaking, quickens the heart-beat.

The electrical modification of the heart-beat in febrile and other affections, however, must be viewed by even the most sanguine as a grave futurity in medicine.

Nerves are governed by the same current laws as muscles, the metabolism and evolution of heat being less marked. When a nerve is stimulated it suffers an increase of irritability at or near the negative pole termed "katelectrotonus," and at the anode a diminished irritability or anelectrotonus. The excitability of a nerve is lessened by a descending current and increased by an ascending one; therefore a nerve, whose excitability is impaired by a descending current, has it restored by an ascending. It follows from the above that we should place the positive pole of the galvanic circuit over the painful region of a neuralgic nerve.

In labial or muscular paralysis, the stimulating or exalting current is required, and the higher up we apply the electrodes the greater will be the peripheral results. Hence the origin of the snowslide or avalanche theory of nerve currents.

In the stimulation of special nerves, such as the great auricular, nervi-epiglotes, sciatic, etc., etc., for vaso-motor influences, exceptional results have been observed, which I shall not attempt to itemize, for they belong more truly to the domain of physiology.

By the stimulation of sensory nerves, we produce reflexas with or without pain. Innutrition, loss of temperature, etc., etc., as in muscles, affect the electrical phenomena of nerves.

Percutaneous galvanization of the brain produces a variety of symptoms. Faradization of the veins causes vomition and arrests peristalsis, while galvanism induces quiescence of the stomach. Galvanism of the eye, especially kathodic, induces flashes of light of the tongue and nose, subjective tastes and odors, respectively.

The fact that morbid alterations in the tissues affected their electrical phenomena gave birth to a permanent factor and practice in medical science—"Electro-Diagnosis"—which requires a comparison of symmetrical parts where disease is unilateral, and a comparison of some other part of the body whose reaction is definitely known when disease is "bilateral." In either case pathognomonic results may be obtained. Further, the seat of disease may be localized by the "thermo-electric pile," which possesses a superacute sensitiveness to variations of temperature. This fact has a bearing upon the "cerebral localization hypothesis," and upon the diagnosis of obscure lamenesses in the horse.

A few brief remarks upon electro-therapeutics and surgery will conclude this crude paper.

In practice, good results accrue from the tonic effects of the local withdrawal of sparks from the affected parts in exhaustion, debility, muscular and chronic rheumatism, stiff joints, neuralgia, gastralgia, torpid liver, dyspepsia, constipation, etc. Whether this action is entirely reflex or direct, or both, it is yet uncertain. The size of electrodes is a point to be considered. The current is stronger and more dense at the smaller electrode. For a small superficial motor point use a small electrode, with a larger one at a distance. For a larger part use large-sized electrodes close together. For a large joint or a deep-seated part, such as the bladder or brain, place large terminals on both sides of the part, so that the current will cover the area. For the stimulation of the bladder or rectum, however, I consider spinal-electralization all that is necessary, because in treating paraplegia incidental to indigestion, spinal anæmia, etc., defacation and urination will be found to be early and significant responses to the life-sustaining fluid. Avoid unnecessary pain by a gradual increase in the strength of the current and by a firm and uniform pressure of

the electrodes, and by so doing you will soon become convinced that the idea that a monthly or even weekly continuance of the electrical medication is essential to a cure, is absolutely fallacious. In nervous diseases periplural treatment often cures or palliates the symptoms of centric lesions.

Local and general faradization have been utilized in a great variety of diseases. I have used general faradization in spinal meningitis, and local in pharyngoplegia, using the MacIntosh battery. In the first case, running the current from the occiput, or spine, to the perineum; in the second, from the occiput to the pharynx, and with prompt success.

Galvanization of the recurrent laryngeal nerve and the local withdrawal of sparks from the region of the larynx have been tried by veterinarians, with varying success, in the treatment of roaring (a cure must depend upon the cause). Galvano-faradization may be employed where both currents are indicated simultaneously.

All varieties of paralysis have been treated by electricians, and generally with good results. It must be borne in mind, however, that internal medication often assists the electrical fluid in attaining its successful issues, and probably at times counteracts its beneficial results where failures are recorded. Authorities have agreed in human practice that interrupted kalteodic galvanism applied to the part in paralysis is most useful, while local anasthesia yields more truly to faradism.

In the treatment of spasms or cramps the indications call for sedative anodic galvanization to the part, with stimulation of the antagonistic muscles.

Hyperæsthesia, pain, and neuralgia are undoubtedly benefited by the application of the galvanic anode over the seat of irritation, and palliation at least may be obtained where deep-seated organic lesion underlie the symptoms. Functional disorders of the brain may be treated directly by percutaneous cerebral galvanization, or by reflex faradization. But in almost all cases we may accept it as a general rule not to institute electrical stimulation until inflammation has been subdued.

The same remarks apply to the spinal cord which has been

electrified in hemiplegia, paraplegia, paraparesis, chorea, progressive muscular atrophy, ascending paralysis, lead poisoning, affections of the pelvic viscera, etc., etc., etc., by both veterinarians and human physicians, and with kind results. 'Tis possible that that obstinate form of impaction leading to paralysis of the lesser colon and so frequently death of the horse, may be overcome by scientific electralization.

Viewing tetanus as a functional increase of the irritability of the great nerve centres, we are justified in theoretically concluding that percutaneous-cerebral anodic galvanization would be at least beneficial, if not curative. But the empirical use of the electrical fluid in this and similar affections must be futile and perilous to the patient, as well as degrading to the practitioner.

In labial paralysis and labio-muscular atonicity in the horse, stimulation of the portio dura is useful and easily instituted.

Rheumatoid colteritis, with or without structural changes, is said to yield to galvanism.

Many abdominal affections have been treated in the human subject by percutaneous applications; but the difficulty of such practice in veterinary medicine is a formidable objection, which may also be said of the electric and magnetic belts in use.

Diseases of the genito-urinary organs and such general diseases as anæmia, chlorosis, etc., attest the efficacy of electrical medication. Electrical surgery seems to have, as its inducing features to veterinarians, the absence of pain and hemorrhage in the amputation of the tongue, penis, etc.

The electrolysis of aneurisms, removal of warts and malignant tumors, stimulation of ulcers, absorption of enlarged glands, and kindred operations are surgical applications of the fluid, upon which I expect to receive some practical information from some of the older members of the profession here to-day, and I shall depend on these gentlemen to describe in detail the uses and results of usage of the galvano-cautery.

In conclusion, gentlemen, let me thank you for your kind attention, and ask that you will pardon the feebleness of this paper, and make up for its inefficiencies by a hearty after discussion.

DEFECTS OF THE PRESENT U. S. ARMY VETERINARY SERVICE.

By D. Lemay.

The aggregate pecuniary value of army animals is nearly three million dollars ($3,000,000).

Two-thirds of these animals (value $2,000,000) are not only utterly unprovided with veterinary attendance or supervision, but are left to the ignorant and often brutal treatment of soldiers and drivers, resulting in immense loss of public property.

Large losses occur annually, and great waste of veterinary drugs, instruments, animals, etc., there being no veterinary specialists in charge of the department, and the business of purchasing, feeding, shoeing and general management of horses being regulated by "Boards" composed of officers lacking the necessary technical knowledge or education to fit them for the position.

United States Army officers, unlike their European confreres, receive not the slightest instruction in veterinary matters, and yet they are frequently in charge of large numbers of public animals, being obliged to make rules for their sanitary well-being and even regarding their medicines and veterinary attendance.

Army horse-shoeing "according to tactics" is "foot-butchery, hoof-mutilation, and destruction." It permanently cripples and renders useless hundreds of valuable horses and mules each year.

The condemned and death lists amongst animals present, annually, a far higher percentage than that of any other civilized army, requiring a yearly appropriation of two hundred thousand dollars ($200,000).

Animals, fit for military purposes, are becoming scarcer, of greater pecuniary value, and more difficult to procure from year to year.

Large numbers of animals, anatomically unsound, physically unfit from bad conformation, etc., are annually purchased, from want of professional veterinary examination previous to being bought.

The present position of Army Veterinarians, their low relative rank, poor pay, utter want of prospects, promotion, or pension for long services, injuries or wounds, to which their professional

duties render them so liable, is such as to deter respectable, efficient, or talented professional men from entering, or, having entered, remaining in the service.

The Board of 1879 decided that "all Army Veterinarians must be graduates of reputable colleges or schools," nevertheless four of the best appointments are, at present, in the hands of quacks and empirics.

On the arrival at their post of ninety (90) remount horses, purchased in 1885, a casual professional examination revealed seventeen (17) of them affected wtth various chronic diseases, which not only rendered them worthless for military purposes, but reduced their pecuniary value at least seventy-five per cent. below what they cost the Government.

Appointments as Army Veterinarians are in the hands of regimental commanders, who, from individual idiosyncrasies, frequently have difficulty in retaining them, and thus cavalry regiments, whose animals may be valued at one hundred and fifty thousand dollars ($150,000), are frequently, for long periods, without professional assistance, often resulting in serious losses. Instanced in the First Cavalry, in 1876, where an outbreak of "glanders" lasted two years, causing the sacrifice of several human lives as well as animals, and was only finally suppressed on the appointment of a skillful veterinarian, who found it necessary to order the destruction of horses and property valued at fifty thousand dollars ($50,000).

The Act of Congress specially states "that each cavalry regiment shall have one Veterinary Surgeon," nevertheless many regiments are frequently, for long periods, not so provided.

The Board of 1879 recommended as a measure of economy that a Veterinarian be stationed at every large garrison.

Veterinary education comprises a three years curriculum, an expenditure of about three thousand dollars ($3,000), and more subjects are as minutely studied than in human medicine, viz.: botany, mineralogy, physics, chemistry, analysis of food and water, physiology, histology, pathological anatomy, general pathology (human, equine, ovine, bovine, canine and feline), medicines, therapeutics, soundness of animals, dietetics, buying and selling,

transportation, horse-shoeing, clinics, obstetrics, surgery, forensic medicine, veterinary police and contagious diseases, meat inspection, animal conformation, operative practice, microscopy, sanitation, stabling, examination of forage, grain, water, etc., hygiene, skin diseases, ophthalmology, helminthology, jurisprudence, etc.

The Army Veterinarian is paid less than the signal service soldier, ordnance sergeant, wagon boss, mule packer, post blacksmith and carpenter, Q. M. clerk, general service clerk, headquarter messengers, etc., etc. He has only the rank, quarters and social status of the enlisted man, consequently his professional suggestions and instructions are neither received nor executed with the respect and promptness they deserve.

Amongst all other branches of Government veterinary service (the Bureau of Agriculture and various State veterinary officials) the Veterinarian is recognized, treated and respected as a professional representative and a gentleman, with stipend from two thousand dollars ($2,000) to five thousand dollars ($5,000) a year.

The Veterinarian has no control over those who should be his subordinates, viz.: the farriers and blacksmiths, consequently his instructions are ignored or carelessly performed, his treatment of sick and lame animals are frequently countermanded and interfered with by the veriest tyros and smatterers in veterinary matters.

The Army Veterinarian's pay, $75 for juniors and $100 for seniors, per month, is not sufficient to supply more than the bare necessaries of life, as army living is high and expensive. In traveling, he is only allowed the same amount of baggage as an enlisted man, and consequently must dispose of his effects when leaving and purchase others at the next station. His travel pay stops on his arrival at his destination, although he is frequently compelled to remain at hotels, etc., for long periods, through scarcity of quarters.

The Quartermaster General in his annual report of 1884-5, states "that Veterinarians are practically without quarters."

As a professional representative and gentleman he cannot associate with the enlisted men, more particularly if he wishes to command the respect necessary to the proper performance of his duties. His present status and pay debars him from the society of officers and their families.

In all European armies, including those of England, France, Germany, Russia, Italy, Egypt, Sweden, etc, etc., the veterinarian is a commissioned officer, ranking from Lieutenant to Colonel; some of those countries are so particular in this respect (France and Germany) that they graduate and educate their own veterinary cadets, and in all of them their veterinary services are organized into special corps and departments.

The British War Department controls thirteen thousand six hundred (13,600) animals and employs over two hundred (200) of the most scientific and talented veterinarians, ranking as commissioned officers, from Lieutenant to Colonel. The United States War Department controls over fifteen thousand (15,000) animals, and employs but fourteen veterinarians, ranking as enlisted men, hence none but the very refuse of the veterinary profession will remain in the army under the present humiliating conditions, resulting in great loss of public property, and detriment to the military service.

Troop horse-shoers and farriers are detailed to these duties without the slightest intelligent instructions, and are left to their own ignorant, injurious and often cruel devices, resulting in ruining, crippling and poisoning public animals, large numbers being permanently and prematurely rendered useless, and sold as unserviceable and unfit for further service from the above easily preventable causes.

The establishment of a veterinary hospital, pharmacy and shoeing shop in each post, under the special control and supervision of a veterinarian, would cause an immense saving, preventing the present exhibition of enormous and poisonous doses of drugs by ignorant farriers; the ruinous foot butchery and foot mutilation now carried out by horse-shoers, and for the isolation of sick animals. The latter are now retained in their usual stalls, in the midst of their companions, hence the frequency of outbreaks of contagious diseases amongst army animals.

Approaching service in large cities, and neighborhood of the centres of contagious diseases, together with the removal of military animals from soft prairies to hard roads and pavements, renders the establishment of an army veterinary department, and induce-

ments for talented veterinarians to enter and remain in the service an urgent necessity and a measure of economy. The present disgraceful state of army veterinary matters savors largely of apathy and negligence of the best interests of, and detriment to, the various branches of the service.

The formation of an army veterinary corps, with its commissioned officers, as in all European countries, would prove a great economy and benefit to the best interests of the service. It would reduce the present high mortality and yearly animal condemned list, arising from causes not inquired into. It would insure the purchase of sound and proper animals, prevent the present waste of drugs and other veterinary materials, and provide rational instructions for veterinary nurses and horse shoers. At present, certain stables, posts, regiments, batteries and garrisons may have an unusually high death rate, or percentage of sick or diseased animals, and continue so, without the slightest attention or inquiries as to their causes, or measures being undertaken for their removal, prevention or recurrence.

Army veterinary service is and always had been a vast series of wasteful and extravagant experiments in drugs, animals, horseshoeing, etc., etc. The Army and Navy Journal says: "It costs five dollars, ($5.00) per horse, per annum, for army veterinary service, against fifteen cents per horse, per annum, at the American Veterinary College, New York."

As well might combatant officers, and with equal chances of success, attempt the management of that admirable corps, the Medical and Hospital Department, as is now obtained, at their hands, in army veterinary affairs.

REPORTS OF CASES.

FRACTURE OF RADIUS—AMPUTATION.

By H. B. Adair, V.S., of Kansas City, Mo.

Jan. 24. I was consulted in regard to a mare that had fractured her leg about Jan. 20. The mare was fifteen years old, and blind in both eyes, and was safe in foal to Governor Wilkes. She was at Waterloo, Mo. (about thirty miles from Kansas City);

owner didn't know anything about the case, only from a telegram which stated that her leg was broken, and he wanted to save the foal if possible. I went out on the evening of 25th, and found the mare lying on her right side in a log stable, and the temperature about 10° below zero; left front leg fractured at upper part of radius, and a part of the bone protruding through the skin on the internal side. The leg was cold and had very little life left in it,—mare suffering considerably. Above the fracture the leg was swollen to twice its natural size. I concluded that there was only one thing to do to save the mare, and that was to amputate the leg, which I proceeded to do by securing the three sound legs with a rope, and administered an anæsthetic in the form of chloroform; then divided the soft structures with a large scalpel, letting the internal and external sides form the flaps; these I pressed upwards, and with a bone saw cut the radius above the fracture about three inches from its proximal end, and secured the posterior radial artery; cleansed the parts with carbolized warm water, and closed the flaps together with strong tape and a large speying needle, leaving drainage before and behind where the flaps came together. Revived the mare by sponging mouth with cold water. After half an hour raised her by the use of slings; only kept her up for a short time; gave her a good bed, and left her until morning. When she was raised she took some water, and wanted to eat; had no pain, and was comparatively quiet. I left orders to have the leg dressed every day, and to let her down at night, and feed her anything she wanted to eat. I heard nothing more from her until Feb. 9, when the owner stated that she was eating regularly every day, and the wound was looking healthy; expected her to foal a live Wilkes colt before two months.

INQUIRY ON FOUR FATAL CASES.

By H. Neher, D.V.S.

I wish to report to you four cases that have come under my notice within a short time. The first one was on Sunday, January 29, and is as follows: The horse, "Heavy Draught" taken suddenly ill just after coming in the stable. Symptoms on the

start similar to spasmodic colic, no rise in temperature of any account, but seemed to suffer intense pains at intervals. I concluded it to be spasmodic colic, gave a physic ball and morphia hypodermically, watched him for a time and after he came under the influence of morphia, I attended to other calls. When I arrived home found a message to "come and see the horse, as he was very much worse." I went and found the animal standing shivering, respiration hurried, pulse rapid but weak, expression haggard, ears and extremities icy cold, sides of abdomen wet with perspiration, temperature 103° F., pressure on abdomen not tolerated; a tendency to sag backward, and the most important symptom was a discharge through the nose of a copper colored fluid and very, very offensive; this seemed to be vomited up every little while, and in quite large quantity. Often he would sit on his haunches "like a dog;" then he would roll on his back and flex his legs on his abdomen, curb his nose on the stemum and lie in that position for a short time, then suddenly spring up, stand on his feet, hang his head and vomit. I concluded it to be gastric trouble associated with inflammation, and treated accordingly, and had the pleasure of seeing the animal regain health after a few days, but to-day seems to be stupid at times. That was case No. 1.

No. 2 was a two-year-old colt, never driven, nine miles from the other. Was taken at night, treated by a farmer, lived that night, and all next day. I was called at 7:30 p. m., went, and got history which seemed to be like case No. 1. Found the vomiting of fluid the same, prognosed death, which occurred in half an hour. Held post mortem and found the following on opening the abdominal cavity: the stomach very much distended, empty as far as food was concerned but filled partly with the fluid I speak of and partly gas. Examined it carefully but found no rupture of its coats, and on pressure could not force its contents through the œsophagus. On opening it the mucous membrane of the right sac seemed to be entirely eaten off, and its bleeding attracted my attention. I traced the intestinal mass in its order and found the small intestines very much inflamed in patches. The farther I went towards the rectum the more inflammation I found, also the blood vessels running through the mesentery proper were filled with

coagulated blood, which could be traced around the intestines in splendid shape. The liver seemed to be all right, also kidneys, spleen, etc., but on opening the thoracic cavity, the heart being taken out and excised was found entirely empty and looked as if it had been washed out, so clean it was. The lungs were patchy, healthy in parts, with spots containing coagulated blood in other parts; no fluid in the cavity at all. I reasoned that the condition of the lungs was due to breathing or taking in this fluid while inspiration was being effected.

Case No. 3. was in a horse of about 13 years old, symptoms the same. On being called got there just in time to see him expire. Held post-mortem on him and found things about as in case No. 2.

Case No. 4 was across the river in Saugerties. I was called to consult with a young practitioner, he being telephoned for on Sunday night, Feb. 5. The horse was 7 years old, 16 hands 1 in. high and quite lively. He and his mate were driven on the afternoon of the day mentioned until 5 p. m. when they were brought into the stable, rubbed, blanketed, etc. At 8 o'clock symptoms of colic appeared, the young practitioner was called for, treated him until 11:30, when I was sent for and got there 12:15, saw the case and prognosed death, which occurred at 1:5 a. m. the symptoms being the same exactly as the others I saw. Post mortem revealed the same as Nos. 2 and 3. I have looked my notes over and find nothing in them to compare with the above cases. I have read my text books through and find nothing there to satisfy me in making a proper diagnosis of these cases. In all of the cases with the exception of the colt, the horses got good clean hay and sifted oats; the colt ran on the barn yard in the day time, and was stabled at night. I write to know whether any of my fellow vets. have had similar cases, and if so what diagnosis and treatment, etc.

A QUEER CASE OF STARVATION.

By C. H. Peabody, D.V.S., Providence, R. I.

On January 20, 1887, was called into the country about eight miles to see a horse that the owner said grew poorer all the time.

On arriving found a large bay gelding 8 years old, and I think he was the thinnest, poorest specimen of a horse I ever saw alive. He would have been worth twenty-five dollars for muscular dissection. I found him on the floor of a large barn, with hay mows on two sides and board partitions on the others, with a trough of running water in one corner. The owner informed me that the boy, a lad about 12 years old, gave the animal four quarts of oats a day, and that the horse was never driven, as he, the owner, lived in town and wintered the horse at his farm, and the boy only had to turn the horse out in pleasant weather; that when he turned the horse into the barn the first part of November he was as fat as a pig. I looked at the animal's mouth and found no trouble, also saw that he drank well, fed him some oats and he ate them well. I then began to look at the surroundings and found that the hay had been eaten up as far as the horse could reach and in as far as he could get. I should have said that his lips inside and especially the upper one looked as though they were full of little ulcers. On looking at the mow of hay and pressing my hand against it it was as though one pressed it on so many pieces of wire, it was so hard and solid all around. I then took a rake and raked down some of the hay from the top of the mow and the poor animal almost swallowed it without masticating it at all. I then inquired of the boy if he ever threw down any hay from the top of the mow, and he said, "no, can't he get all he wants off of the mow?" He might as well have tried to get hay from the side of a brick house, the hay was packed in so tight and hard.

Treatment: small quantities from the top of the mow for a few days, then a good quantity, all the animal could eat. The animal made a very rapid recovery.

A NOTE FROM THE DISSECTING ROOM.

ABSENCE OF THE RIGHT INTERNAL ILIAC.

This interesting abnormality was observed in the dissection of the arteries of the right hind leg of a horse, in which the entire internal iliac was entirely absent. The termination of the abdominal aorta was made by only three instead of four branches. On

the left the external and the internal iliac were given off in the usual manner and their ramifications were normally distributed. On the right side, however, there was only one branch; a much larger trunk, about twice as large as usual, left the aorta and assuming the position and course of the ordinary external iliac, kept this dimension as far as to about an inch above the point where, in normal structures, the iliac becomes femoral. At that point a very short trunk arose which soon divided itself into two branches representing the obturator and the iliaco-femoral termination of the internal iliac. The arteries which represent the collateral of this iliac, viz.: the umbilical, iliaco-muscular, gluteal, sub-sacral, and internal pudic, left the large abnormal artery at about their usual places and assumed the same distribution and ramifications. The circumflex iliac left the trunk at its usual place.

EXTRACTS FROM AGRICULTURAL REPORTS.

LOCO WEED * (Astragalus mollissimus; Nat. Ord. Leguminosæ).

By L. E. Sayre, Ph.G., Kansas State University, Department of Pharmacy.

The Fifth Biennial Report of the State Board of Agriculture contains an article by me upon the interesting subject of the so-called *Crazy weed*. The plant is there described, and a few facts—gathered by personal correspondence with stockmen and farmers in western Kansas and in Colorado—are given.

With a view of gathering other statistics concerning the effects of the weed upon animal life, and learning more of the extent of loss therefrom, I visited, in January last, certain parts of New Mexico and Colorado, and during the year have made a special trip for the same purpose, visiting more especially the southwestern portion of Kansas, from Harper to Meade counties. The latter trip was suggested by Mr. Robert E. Steele, on the "Crooked L" ranch at Meade Center, who wrote he had a "locoed" cow which he would place at my disposal for examination if I would take the journey to his ranch.

In the present article it will be necessary to repeat some of the statements made in the last, but the information will have the

* From the Report of the Kansas State Board of Agriculture.

greater value, as it is gleaned from personal conversation with ranchmen and others in stock and cattle-raising from different sections. Having the above specific object in view, great care and much effort were used to obtain facts only.

The plant begins to appear at about Medicine Lodge, and to extend southwesterly into the Indian Territory and northwesterly through the State of Kansas. At Dodge City it was found growing abundantly in spots, although no locoed animals could be found or heard of thereabouts. Ranchmen say they have not been so much troubled with it in recent years, but scores had lost heavily from it in years past. It was ascertained from what appeared to be reliable authority, that about 500 animals have been lost in Meade county during the past five years from the effects of this weed, though occasionally a person was met with who firmly asserted that the plant in question did *not* cause the so-called loco disease. A butcher in Grenada, Colorado, who had been interested in raising cattle and horses, and seemed to be quite intelligent in his subject, most positively stated that "he did not believe one word of all that was said about the crazy weed. He had read and heard a good deal, but he had yet to see an animal becoming affected by loco. He had pastured right in it, and never lost one animal." A number of others gave like testimony.

It would be impossible in the brief space of this article to give the various and sometimes conflicting statements concerning this weed. Evidently there has been a lack of accurate and skillful observation in the matter. The great majority report that the plant is truly named, as it makes the animals not only crazy, but is sure to kill them eventually. Dr. P. Harding, of Dodge City, a veterinary surgeon, stated that at one time he was dealing quite extensively in horses, and had lost a number from what he believed to be the effect of loco. In order to satisfy himself, he performed two experiments upon horses, with the weed; the first experiment being in the field, and the next in the barn In the field he pastured two horses, both horses having a taste for loco. One of the horses found abundance of the plant in his pasture; the other horse found *none*, because it had been carefully removed

from his portion of the field. The first horse died in the pasture; the seoond recovered from the previous feeding. In the barn he also placed two horses similarly affected, and fed one with dried loco, and the other with clean hay. The first died and the other recovered.

The following summary of the effect of loco is based upon personal inquiry among ranchmen. The animal unaccustomed to the weed will not touch it as long as good feed is to be had, but after once partaking of it—driven to it in early spring by the want of green vegetation—soon comes to prefer it to any other food, and finally refuses any other, leaves the herd, and wildly searches for loco. The first effect upon the animal is hallucination. When led or ridden up to some trifling obstruction, such as a bar or rope lying in the road, he stops short, and if urged on leaps over it as if it were a rail-fence four feet high. Seemingly the optic nerve is affected; all sense of distance and dimension seems to be lost; a barn near at hand seems to him afar off, and one a mile away near by. He will go headlong against a barn or a rock, or over a precipice, as if he were totally blind. The animal will, perhaps, let one get close to him, then suddenly and wildly run away at full speed and as suddenly stop, turn around, and it may be, come right back, stop short, stare, "and act like mad."

Mr. William Smith, in the employ of Bollinger & Schlupp, ranchmen, seventeen miles south of Kiowa; Mr. D. R. Streeter, upon the "Z & Z" ranch, near Kiowa, and Mr. Steele, above referred to, are all quite familiar with the symptoms, and agree in every prominent particular concerning them. Mr. Steele gives as one of the prominent characteristics of the disease, "a stony stare." "If a sharp, quick motion is made before the animal's eyes, such as throwing up of the arms suddenly, it is likely to fall to the ground in apparent fright, as though not able to control its muscles." Sometimes a horse is seized as with a mania, in which he is quite uncontrollable and dangerous. He rears, even to falling backward, runs, or gives several successive leaps forward, and generally falls. His eyes are rolled upward until the whites can only be seen, which are strongly injected, and since he

can see nothing is as apt to leap toward a wall or a man as in any other direction. Anything that excites him appears to induce such fits, which are perhaps more apt to occur in crossing water than elsewhere, and the animal sometimes falls so exhausted as to drown in water not over two feet deep. He loses flesh from the first, and presents the appearance of a skeleton. Nutritive energy seems to be paralyzed. In the last stage he only goes from loco to water and back. His gait is feeble and uncertain; eyes sunken, flat and glassy; his coat rough and lusterless, and in general the animal seems to suffer from starvation and constant excitement of the nervous system. Sometimes also he appears to experience acute pain, causing him to run from place to place, paw and roll until he falls, and then dies in a few moments. A correspondent from Texas states, "he cannot tell when a horse is 'locoed' until he drives him very hard. After becoming heated he begins to be excited, and then the peculiar effect of loco appears."

There are two plants known as crazy weed, common in Kansas, Colorado and New Mexico—the *Astragalus mollissimus*, and *Oxytropis Lamberti*, both belonging to the natural order Leguminosæ. E. A. Popenoe, Manhattan, states he has received from different parts, as specimens of crazy weed, besides the above, the following: *Malvastrum coccineum*, *Sophora sericea*, and *Amarantus albus;* but the writer has found from personal investigation that the farmers of our own and adjacent States mean by this title, "crazy weed," one or other of the two species above mentioned. Both the Astragalus and Oxytropis are rather attractive plants, and keep their color all winter.

The Astragalus grows on high ground and rather dry soil which is also gravelly and sandy. It blooms about June, and bears a bright-colored flower, rather attractive in its appearance. There are a great many stalks proceeding from the base. These stalks are compressed, reclining toward the base, and erect and recurved above, subcaulescent, with soft, silky, villous pubescence. The leaflets usually in pairs, except the upper one (composed of from ten to twenty pairs), are somewhat densely clothed with soft, silky hairs, more woolly on the under side. The flower-stalk

is usually longer than the leaf-stalk, naked below, scapelike, bearing a rather thick spike of flowers, which have the general structure of the Leguminosæ, of a bluish-purple color.

CHEMICAL EXAMINATION.

In pulverizing the leaflets, the first portion which passes through the sieve consists almost wholly of the fine hairs which sause the pubescence to the structure. These hairs seem to constitute about one-third of the weight and over one-half of the bulk of the powder. From its light and spongy structure it is difficult to pulverize; the dust arising during the operation is irritating to the mucous membrane—not from irritating principle residing in the plant, but from the immense quantity of broken, sharp-pointed hairs carried up with it. The light, fluffy character is remarkable, being one-tenth lighter than powdered senna.

PRELIMINARY EXAMINATION.

The air-dried powder was subjected to a temperature of 102° C., until it ceased to lose weight. The powder was found by this process to contain 10 per cent. of moisture. It was then incinerated in a platurium crucible, and yielded 12.01 per cent. of ash. The ash yielded to water 25 per cent. of soluble material, and to hydrochloric acid 50.6 per cent., the residue being largely silica. A qualitative analysis of the ash gave the following bases: CaO, K_2O, MgO, Al_2O_3, Fe_2O_3; and the following acid radicals: SO_3, Cl, P_2O_5, Co_2, and SiO_2.

The powdered drug yielded to water acidulated with hydrochloric acid, 30.52 per cent. of extractive, the solution evidently containing sugar, starch, albuminoids and extractive of unknown composition, but containing no alkaloidal qualities. Petroleum ether, when percolated through the powder until the latter was exhausted, yielded, on evaporation, .8 per cent. of extract. The residue left, after treatment with petroleum ether, was exhausted with sulphuric ether, and the ether distilled off. This extract is entirely soluble in alcohol. By fusing the extract with caustic potash, and applying the usual test for vegetable acids, no reaction is obtained. The etherial extract thus obtained was 1.12 per cent. From the second residue an absolute alcoholic extract was

obtained, which amounted to 1.9 per cent. The petroleum ether extract consisted mainly of fat, accompanied with chlorophyl. The fusing point of this fat was 47.5°C.; congealed very readily, showing the presence of a higher cacaonaceous fat. It gave a number of interesting color reactions. The etherial extract contained more chlorophyl and a soft resin. The alcoholic extract was not examined for proximate principles.

With a view of detecting, by a short process, any alkaloids, two experiments were made, as follows:

Ten grammes of the finely-powdered drug were macerated with a mixture of 66 volumes of ether, 5 volumes of alcohol, and 2 volumes of alcohol, for 24 hours. The etherial solution filtered off, and agitated with 15 cc. of water, containing a little sulphuric acid. The ether evaporated off. The residue, tested with Mayer's reagent, gave no reaction.

Fifty grammes were next treated with 3 per cent. of oxalic acid solution at 60° C.; the filtered solution neutralized with ammonia and evaporated to nearly a syrupy condition. This was shaken briskly with ether, the etherial solution decanted and allowed to evaporate. The residue, treated with water acidulated with sulphuric acid and tested with Mayer's reagent, as well as other general reagents for alkaloids, gave no reaction for the presence of such a principle.

Distillation of the powdered leaves from potash lye developed a decidedly unpleasant odor, but upon an examination of the distillate no proof was evinced of the presence of a volatile active principle. The above experiments were made only as a preliminary examination of the plant, as a study of its behavior to various processes merely; the writer will take up the subject more thoroughly in the future. A more exhaustive chemical examination is now in process, and will be reported later.

PHYSIOLOGICAL EXAMINATION.

Through the kindness of Mr. R. E. Steele, referred to above, there was presented an excellent opportunity to personally observe and study the physiological effects of the plant upon animals. A cow had been eating loco for the past year or so, and

had been "crazy" — suffering from the effects of the indulgence for a long time, but, since grass was becoming abundant and loco scarce on the pasturage, she had very recently been improving. This animal was placed at my disposal for examination. Dr. Harding, of Dodge City, was engaged to assist in the contemplated post-mortem, but as he was found too busy at the time, I was thrown upon my own resources. Fortunately, however, I was not without valuable assistance. Mr. A. J. Smith, a recent graduate of the department of pharmacy, who had also taken the preliminary medical course of the University, accompanied me, and we, together with Mr. Steele to do the butchering and heavy work, made the post-mortem. The animal was four years old, but Mr. Steele said no larger than she was at two years. The feeding upon loco had not only stopped her growth, but made her quite poor, and gave her a wasted appearance. She seemed stupid and debilitated, unsteady in her movements, the breathing was short and rapid, and muscular force very much impaired. Whether walking or standing, the head was unsteady and trembling. It was seemingly beyond her power to so control the muscles as to keep her head perfectly still. Mr. Steele stated that a wild stare had been in her eyes, but that had recently disappeared.

POST-MORTEM.

The blood was light, but not abnormal; having no instrument at hand, it was not microscopically examined. The paunch was in a normal condition; the reticulum and psalterium were softened and apparently diseased. Through the entire length of the intestines there seemed to be a degeneration of tissue, being on the inside peculiarly soft. Two or three perforations were observed in the small intestine. Both the large and small intestines were delicate, devoid of elasticity, and even upon careful handling in some places they would be torn or broken apart. The tissue seemed to be, as one expressed it, rotten in some places. The peritoneum and omentum were inflamed, and throughout were found tumors about the size of a pea, which were fleshy in appearance and of a fibrous nature. The pleura appeared normal, as also did the diaphragm. The pericardium was streaked with

red on the inner side, the sac containing about a pint of liquid of a pale yellow color. The heart seemed to be about one-third larger than the normal size. The mitral and tricuspid valves were inflamed around the edges. The valves of the aorta appeared normal, and just above them the serous coat was streaked with red; in other respects appeared normal. The bile was thin and watery, even after standing twenty-four hours. The pancreas and spleen appeared normal; kidneys normal; inner coat of bladder softened. The membranes of the brain were congested and adherent. The congestion may have been caused by the blow on the head previous to killing the animal. She was, however, only stunned by a light blow, and then immediately bled to death. The brain itself appeared paler than normal, but the bleeding may have caused this. The membranes of the spinal cord were inflamed and adherent. The cord itself appeared normal.

Evidently the disease was one of the mucous and serous membranes, which would account for the nervous and debilitated condition of the animal. The general diseased condition of the alimentary canal, by interfering with digestion and proper nutrition, would account for stunted growth and weakness in traveling. This pathological condition would indicate a treatment recommended by Dr. Harding, as follows:

Pulverized extract belladonna	10 grs.
Corrosive sublimate	1 to 1½ grs.
Licorice	1 oz.
Glycerine	q. s.

Mix. Make a thin paste, and give a tablespoonful. The belladonna and mercury may be increased according to the severity of the symptoms. Opium combined with belladonna might be advantageous at the beginning of the disease. Mild and non-irritating articles of food only should be given, such as oil cake, etc. A veterinarian in Garden City recommended the application of a blister behind the ear. This might be good, as also any counter-irritant application along the spine. I am especially indebted for these conclusions and much assistance in making up this report, to Dr. Harding (above referred to), and Dr. Budd Smith, of Grenada, Col.

This examination, while it is very interesting, does not form a basis for any very positive conclusions. It will be necessary, to continue the investigation, to perform a number of like operations. It is very desirable to repeat the experiment of Dr. Harding — all of which the writer is prepared to do as soon as he is able.

VETERINARY LEGISLATION.

A BILL TO PROVIDE FOR THE PROPER ORGANIZATION, COMPENSATION AND RANK OF THE VETERINARIANS OF THE UNITED STATES ARMY.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled:

SECTION 1. No person shall be appointed as Veterinarian in the United States Army unless he be a graduate of a legally chartered or incorporated Veterinary School, College or University, and shall have passed an examination, as hereinafter provided.

§ 2. That the Army Veterinary Corps shall consist of one Chief Veterinarian, with the rank, allowances and pay of a Colonel, mounted, in the United States Army; nine (9) Inspecting Veterinarians, with the rank, allowances and pay of a Captain, mounted, in the United States Army; and forty (40) Assistant Veterinarians—twenty of whom shall be Assistant Veterinarians 1st class, with rank, pay and allowances of 1st Lieutenant, mounted, in the United States Army, and twenty Assistant Veterinarians 2nd class, with rank, pay and allowances of 2nd Lieutenant, mounted, in the United States Army. To be appointed by examination as hereinafter provided.

§ 3. The Chief Veterinarian shall be on duty at the Headquarters of the Army. He shall be responsible to the Secretary of War for the good working of the Army Veterinary Corps and proper discharge of the respective duties of all Veterinarians in the United States Army. He shall have charge of and be responsible for all veterinary supplies, compile and prepare for publication all veterinary reports, and render such other services to

the Government as may be determined necessary by the Secretary of War. There shall be one Inspecting Veterinarian on duty at the headquarters of each military department, who shall be responsible to the Chief Veterinarian for the good and proper condition of all public animals and veterinary supplies in his respective department, and shall instruct all Assistant Veterinarians that may be stationed at any post in his department, shall revise all requisitions for veterinary supplies, also all reports of Assistant Veterinarians as to animals condemned for sale or destruction, and shall report all particulars of the same to the Chief Veterinarian. He shall supervise the treatment of all outbreaks of diseases in his department, and do such other service as may be required of a veterinarian, inspecting from time to time, as his other duties shall permit, all Government animals at the different posts in his department. There shall also be an Inspecting Veterinarian as "Instructor in Veterinary Science" stationed at the Military Academy, West Point, one at the U. S. Infantry and Cavalry School, Fort Leavenworth, Kansas, one at the Cavalry School, Fort Riley, Kansas, and one at Artillery School, Fortress Monroe, Va. Assistant Veterinarians shall be on duty at such posts as shall be considered necessary by the Chief Veterinarian; shall keep a record of all animals placed under his charge, their condition, etc., and report the same to the Inspecting Veterinarian of his department at least once a month; shall have charge of and be responsible for all veterinary supplies, all lame and sick animals, veterinary hospital, shoeing of animals, farriers and blacksmiths, so far as their veterinary duties consist; shall visit once a day all stables, see that they are properly kept, and report irregularities to the Commanding Officer, and perform such other duties as relate to a veterinarian. Veterinarians shall examine all animals presented to the Government for purchase and shall pass no animal that is not anatomically sound and of proper conformation for the service required.

§ 4. Within three months after the passage of this bill, the Hon. Secretary of War shall appoint two Surgeons from the Medical Department of the United States Army and one Veterinarian, who shall be in the employ of the Government at the passage of

this bill, as a Veterinary Examining Board, with power to examine such candidates as present themselves for examination, as hereinafter provided, and to report and certify to him the names of ten (10) candidates who shall have passed the highest examination, as hereinafter provided.

§ 5. The Veterinary Medical Examining Board, as hereinafter provided, shall examine candidates by written, oral and practical examinations. The written and oral examinations to embrace the following subjects: Anatomy, Physiology, Histology, Pathology, (Equine), Pathology (Bovine), Surgery, Chemistry, Materia Medica, Toxicology, Botany, Sanitation, Dietetics, Principles of Shoeing, etc. The practical examination will embrace: Examination of animals as to soundness, age, exterior of horse with regards to points, marks, seat of diseases, conformation for different kinds of military service, etc., operations, prescribing, compounding and administering medicines, &c.

The examination for promotion shall be written and include all the above subjects and such others as shall be considered necessary.

§ 6. The examination, as hereinfore provided, shall be held at the Headquarters of the United States Army, and those Veterinarians in the employ of the United States Army on the passage this bill shall, if they desire to be examined, be allowed three months' leave of absence with full pay from their post in order to prepare themselves for such examination.

§ 7. Within one month after receipt of the certificate of the ten (10) names of persons who have passed the highest examination, the Hon. Secretary of War shall appoint one of the highest three of such ten (10) names so certified as Chief Veterinarian, with the rank and pay as provided for in Section 2 of this Bill, and the remaining nine (9) persons so certified he shall appoint as Inspecting Veterinarians for departmental and instruction duty, as hereinbefore provided, with rank and pay as provided in Section 2 of this Bill.

§ 8. Tne Hon. Secretary of War shall, when considered necessary, have power at any time, on the requisition of the Adjutant General and Chief Veterinarian, to appoint three (3) veterinarians

(one of whom shall be the Chief Veterinarian), who shall be in active service in the United States Army, as a Veterinary Medical Examining Board, to examine candidates for the position of Assistant Veterinarians, as provided for in Section 3 of this Bill, who shall, on the recommendation of the Chief Veterinarian, approved by the Secretary of War, be appointed Assistant Veterinarian, provided he shall have obtained not less than seventy-five per cent. at such examination, where not less than three (3) candidates were examined.

§ 9. In the event of the removal, by any means, of the Chief Veterinarian, or one or more of the Inspecting Veterinarians, their positions shall be filled by promotion, and such promotion shall be by seniority and examination, but no one shall be eligible for such promotion unless he shall have passed an examination, as hereinbefore provided, and possess the necessary qualifications, as required by Section 1 of this Bill.

§ 10. All veterinarians who, at the passage of this Bill, shall be in the employ of the United States Army, shall, if they desire, present themselves for examination for the position of Chief Veterinarian, Inspecting Veterinarian and Assistant Veterinarian, 1st class, and shall, at their own request, be granted three months' leave of absence with full pay, provided such leave of absence is for the purpose of preparing themselves for examination; such veterinarians shall have precedence over candidates who have not been in the employ of the United States Army, at such examination.

§ 11. Veterinarians in the employ of the United States Army at the time of the passage of this Bill shall be appointed Assistant Veterinarians, 2nd class, with rank and pay as hereinbefore provided, but shall hold no higher position except as hereinbefore provided.

§ 12. That the number of Army Veterinarians shall not exceed fifty (50).

§ 13. Applications for positions in the United States Army Veterinary Service (except such as are employed as such at the passage of this Bill) must comply with the same preliminaries as are now required of candidates for admission to the Army Medical Corps.

§ 14. All boards relating to Equine matters shall include at least one (1) Veterinarians as a member thereof.

§ 15. This Bill shall take effect immediately.

REVIEWS AND NOTICES.

A TREATISE ON THE DISEASES OF THE DOG. By JOHN HENRY STEEL, M.R.C.V.S., A.V.D. (Longman, Green & Co., London.)

Though our English literature on Canine Pathology has for the last few years been enriched with works on the subject of no little value, there has always existed a lack of thorough modern elevation, and, while most of them have been more or less satisfactory compilations, on that account they were not on a level with the scientific progress of our age.

Mr. John H. Steel, who has already published several works on veterinary matters, has tried to fill up this gap, and well has he succeeded. His new treatise is now before the veterinary public, and all those who will read it will find in it a most excellent book, where the author not only gives the results of his own experience, but also has, in many pages, given that of continental writers. The 280 pages which form the neatly issued volume are divided into thirteen chapters, illustrated by eighty-eight wood-cuts, obtained from books well known to the profession. In the opening chapter the writer indulges in some general remarks upon the value, importance, and necessity of specialists in education, accompanied by valuable remarks upon the prevalence of empiricism — a part of the book that our American public would do well to appreciate; concluding with reference to some general disorders. Chapter second is a concise materia medicæ. In the following chapter, diseases of the blood are extensively treated, rabies amongst them. It receives careful and extended attention from the author, and the subject is learnedly treated down to the present day. Diseases of the circulatory, respiratory, and digestive apparatus form the fourth, fifth and sixth chapters, — this last being completed by an excellent appendix on abdominal surgery. The urinary and generative apparatus fill the seventh

and eighth chapters; the ninth treats of affections of the nervous system. The affections of the eye, of the ear, of the skin, as diseases of the special senses, are found in a very complete chapter, the tenth; the eleventh treats of injuries of the locomotor system. Toxicology is found in the twelfth chapter; the thirteenth being a little manual of surgery. A tabular statement of medicines for internal and external use completes this excellent work, which we without hesitancy consider as the most completed and perfect book ever published on the subject in the English language.

SCIENTIFIC HORSESHOEING. By W. Russell (Robert Clarke & Co., Cincinnat). 2d Edition.

Freely embelished with cuts and diagrams to illustrate the subjects treated, and in a practical point of view, affording many valuable suggestions.

TABLES OF VETERINARY POSOLOGY AND THERAPEUTICS. By G. A. Banham, F.R.C.V.S. (Brailere, Tindall & Co., London).

CORRESPONDENCE.

PROF. F. S. BILLINGS' LABORATORY.

Minneapolis, Minn., January 24, 1888.

Editor American Veterinary Review:

Dear Sir.—Having recently spent a few days with Dr. F. S. Billings at his laboratory in Lincoln, Nebraska, I thought it might be interesting to some to give a short account of what I saw there, also of the work done. This Laboratory at present occupies a room in the State University building, very conveniently arranged, heated by steam and well lighted, supplied with hydrant water for all necessary purposes, also gas taken from a pipe running around the room where jets are taken out wherever necessary for the purpose of heating thermostats and sterilizers, of which there is a good supply, of large size, expressly ordered by Dr. Billings, there being also a great variety of tissue specimens for coloring and for microscopical examination, with several valuable microscopes. Another room near by used as a library contains a large collection of medical works, both

ancient and modern. There is also a culture room, well lighted and heated with steam, regulated by a patent register so that the temperature can be at all times under complete control. This room contains a number of incubators and all necessary apparatus for the cultivation of germs, together with many pathological specimens preserved in glass jars. Still another large room in the basement of the building is used for the keeping of a number of rabbits, squirrels and mice for experimental purposes, several of which have already been inoculated with hog cholera, Texas fever, etc. Outside a convenient building is kept for the purpose of holding autopsies.

The beautiful experimental farm situated just outside the city limits, to which the Dr. drove me, is run in connection with the State University. Here Dr. Billings has achieved most wonderful success in his inoculation experiments to secure a preventative of hog cholera.

In a pen where hogs had been dying of cholera for two years were placed a dozen or fifteen shoats, which had been previously inoculated, and exposed as they were from these thoroughly impregnated surroundings for over three months, not one had at that time shown the least sign of affection and seemed as thrifty as any I ever saw at their age: while out of ten healthy pigs purchased from the country, where they had never been exposed, and placed in the same pen with the inoculated ones, all but one had died of hog cholera, and upon two of which we held autopsies. Each showed severe glandular affection, an ulcerated condition of the large bowel and immediately about the ileo-caecal valve, nephritis and a somewhat inflamed condition of the lungs; material taken from the spleen gave a pure cultivation of the hog cholera germ; several other lots had been inoculated in the country with equal success.

Dr. Billings is an ardent and untiring worker and the unquestioned success which has attended his investigations in the study and final development of the true germ causing hog cholera and Texas fever, within the fourteen months of his experiments shows fully to any candid and intelligent mind, unbiased by prejudice and jealousy, that his labor is not the product of a "disor-

dered brain," as asserted by our distinguished Dr. Salmon now at the head of the Bureau of Animal Industry.

Yours &c.,
J. J. BRADLEY, D.V.M.S.
Graduate of Northwestern Veterinary College.

VETERINARY JOURNAL WANTED.

DEAR SIR.—I will pay $5.00 for the first volume of "Flemming's Veterinary Journal," either in pampelet form or bound, if it is complete and perfect. By inserting this in your next issue you will greatly oblige, Yours truly,
C. H. PEABODY.

POSITION WANTED.

GREELY, IOWA, FEBRUARY 16, 1888.

Editor American Veterinary Review:

SIR.—Will you kindly insert the following in your valuable journal and oblige Faithfully yours,
W. F. C. SMITH.

Thoroughly competent and practically experienced member of the Royal College of Veterinary Surgeons, England, seeks a position to assist or manage for a practitioner. Highest qualifications and testimonials. Correspondence solicited.

Box 29, Greeley, Iowa.

OBITUARY.

A. L. Brown, D.V.S., age twenty-six, of consumption, at Stamford, Ct. Dr. Brown, after graduating in 1885, had started in that town and had succeeded in establishing himself in a good and lucrative practice when the symptoms of the disease which carried him away began to manifest themselves. He obtained some relief for a short time by rest and in visiting warmer climates, but on returning home, where he hoped he might be able to resume his professional duties, he soon was confined to his bed and died on the 18th of February. By his death the State of Connecticut loses one of her best practitioners; the profession, a worthy and good member; his parents, a loving and respectful son. We tender his family our sincere sympathies.

SOCIETY MEETINGS.

ILLINOIS VETERINARY MEDICAL ASSOCIATION.

The fifth annual meeting of the Illinois State Veterinary Medical Association convened at the Sherman House, Chicago, Nov. 15, 1887, at 11 a. m., Pres. B. B. Page in the chair. An adjournment was at once taken until 2 p. m., when the following members were present: Drs. Page, Redner, Jenks, Casewell, Martin, A. H. Baker, S. S. Baker, Spangler, Withers, Ryan, Scott, Nattress, McClintock, Delavergne, Withers, Hughes, Paaren, Quitman and Ireland. There were present also, arriving later, Messrs. Williams and Armstrong.

The minutes of the previous meeting were read and accepted. Then followed the President's annual address, after which officers for the ensuing year were elected as follows: President—W. L. Williams, Bloomington; 1st Vice-President—Jno. Casewell, Chicago; 2d Vice-President—W. A. Baker, Champaign; 3d Vice-President—A. Ziegler, Lincoln; Recording Secretary—P. Quitman, Chicago; Corresponding Secretary—S. S. Baker, Chicago; Treasurer—Jno. Scott, Bloomington; Board of Censors—Drs. Page, Withers and Stimpson.

On motion of S. S. Baker, T. L. Armstrong, of Indianapolis, Ind., was elected an honorary member.

On motion of Dr. Casewell, B. Tabbot, of Galesburg; and on motion of Dr. Quitman,—Bernard, of Serena, Ill., were elected members of the Association.

The report of the Treasurer showed a balance on hand of $53.92.

Honorary member Dr. F. S. Billings, of Nebraska, addressed the meeting in an interesting manner regarding his investigations in the etiology of swine plague, and practical means of prevention, for which he received a hearty vote of thanks.

An interesting paper on "Colic" was then read by Dr. A. H. Baker, which was freely discussed by the members present, after which the Association adjourned until 7.30 p. m.

Reassembled with President-elect Williams in the chair. Dr. Hughes read a brief paper on "Colic," by Thriepland, and Dr. Ryan read an essay on "Azoturia," which was thoroughly discussed.

The members then enjoyed their annual bauquet, which was participated in by the students of the Chicago Veterinary College, after which the Association adjourned until 10 a. m., the following day.

Nov. 16th.—The Association was called to order at 10 a. m., President Williams in the chair, when Dr. Paaren read an interesting essay on "Nutrition during Disease and Convalescence," which was followed by an animated discussion, after which adjournment was had to 2 p. m. Upon re-assembling an essay was read by Dr. Williams, entitled, "The Veterinary Profession; Its Needs and Opportunities for the Future."

Each of the essayists received a hearty vote of thanks from the Association.

Drs. Paaren, S. S. Baker and Williams, who were appointed a committee on revision and reprinting of the Constitution and By-Laws, proposed a number of material changes, and the committee were instructed to make the changes proposed and have the revised Constitution and By-Laws printed for adoption at the next meeting.

Drs. Casewell, Page and McClintock were appointed a committee on programme for the next meeting.

A hearty vote of thanks was tendered to the proprietor of the Sherman House for many courtesies, and the Association adjourned after having held one of the most interesting meetings during its history.

W. L. WILLIAMS, *President.*

COLORADO STATE VETERINARY ASSOCIATION.

On Wednesday evening, February 1, a meeting of the graduated veterinary surgeons of the State was held at the office of Dr. Charles G. Lamb, in the Chamber of Commerce, for the purpose of forming the Colorado State Veterinary Medical Association, at which meeting the following officers were elected: President—Dr. William McEachran; Vice President—Dr. A. F. Martins; Secretary and Treasurer—Dr. Charles G. Lamb.

The objects of the Association are mutual benefit and the advancement of veterinary science in this State.

The charter members are Drs. A. F. Martins, William McEachran, C. L. Smith, Sol Bock and Charles G. Lamb.

VETERINARY APPOINTMENT.

DR. WRAY STATE VETERINARIAN OF MARYLAND.

As we go to press we are informed that *Dr. W. Wray* has just been appointed State Veterinarian to Maryland.

The record of Dr. W. in connection with the stamping-out of pleuro-pneumonia is well deserving notice. During General Patrick' commission several years ago, he won his first laurels in Westchester County, in New York State, and in the last few months in Kentucky, Maryland and more recently in New York, he proved to the Bureau of Animal Industry one of its most excellent officers. His appointment to Maryland is a well deserved promotion, granted to him through the influence of the numerous friends he had made by his congenial manners in carrying through a too often difficult and unpleasant duty.

LIVE STOCK IN KANSAS.

From the Report of the Kansas State Board of Agriculture the following statistics, showing the number of animals and their value, have been obtained: Horses, Mules and Asses, 738,594, valued at $67,319,030; Cattle, 2,261,486, valued at $45,229,720; Sheep, 538,767, valued at $1,077,534; Swine, 1,847,394, valued at $12,931,758.

The wealth of Kansas in live stock is then represented by $126,558,042.

The death record, as follows: 17,818 solipeds, 60,540 cattle, 24,867 sheep, 402,067 swine, 160,625 dogs, completed these statistics of domestic quadrupeds.

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AMERICAN

VETERINARY REVIEW.

EDITED AND PUBLISHED BY

Prof. A. LIAUTARD, M.D. V.S.,

Foreign Corresponding Member of the Central Society of Veterinary Medicine (Paris), Honorary Fellow of the Royal College of Veterinary Surgeons (England).

141 WEST 54TH STREET.

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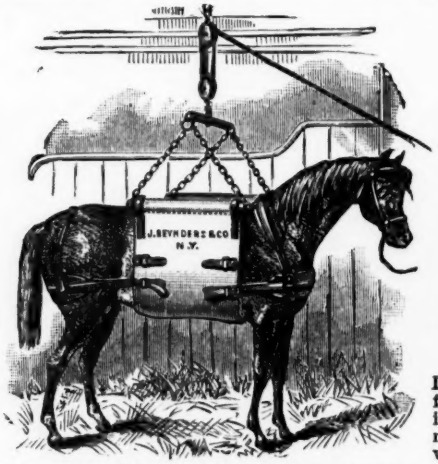

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THE AMERICAN VETERINARY REVIEW is published on the first of every month, and contains from 44 to 48 pages of reading matter in each number, consisting of *Original Articles* from eminent members of the profession in this and other countries; *Reports of Cases; Translations* of some of the excellent articles on veterinary subjects published in Europe; *Lectures*; *Reports of Societies*; *Editorial Articles*, on important current topics of interest; *Reviews and Notices of Books: Correspondence; Medical Items and News.*

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Post Office orders to be made payable to A. LIAUTARD, Editor, through Station G. New York.

As we go to press on the 20th of the month, papers for publication ought to reach us before or on that date.

UNIVERSITY OF THE STATE OF NEW YORK.

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This College, which is now in the thirteenth year of its existence, and whose Faculty has been engaged in teaching veterinary science for *over twenty years*, offers to students advantages unequalled by any other college.

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The regular term opens in the beginning of October, and closes at the latter end of March following. The Spring begins immediately after the Winter Session. For further information and circulars apply to A. LIAUTARD, M.D., V.S., Dean of the Faculty.